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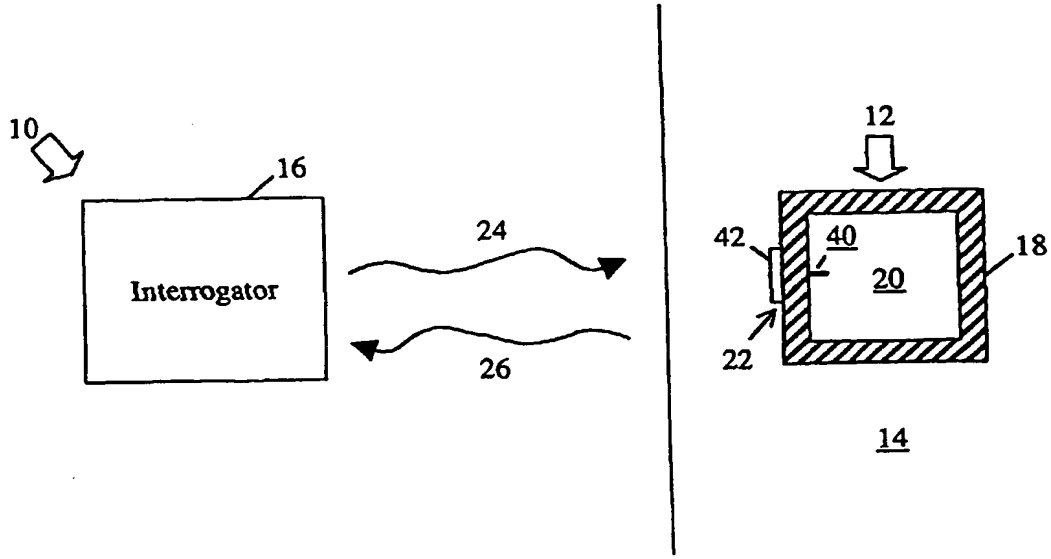
(54) Title: MEASURING STRAIN IN A STRUCTURE (BRIDGE) WITH A (TEMPERATURE COMPENSATED) ELECTROMAGNETIC RESONATOR (MICROWAVE CAVITY)




(57) Abstract: The system (10) comprises a sensor (18) 90x90x90x30 mm as an electromagnetic microwave cavity (20) with a coupler (22) with a wire (40) and an antenna (42). Cavity (20) produces a response signal (26) in response to an interrogation signal (24) from interrogator (16). Sensor (18) is coupled to a structure (14) to allow a strain to alter the resonance properties. 3.6 GHz is used with a detection of a 2.5 kHz change. If not temperature via strain is detected a mechanical amplifier is used with cavity (20) for temperature compensation. Continuous or intermittent narrowband signals are used as interrogation signals (24). Used with bridges for structural health monitoring. Also for aircrafts, dams, buildings, vehicles.

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